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BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER

YUEN, WING-FUNG

ART UNIT	PAPER NUMBER
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2128

NOTIFICATION DATE	DELIVERY MODE
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09/04/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/588,376	Applicant(s) MATSUDA, TATSUHIRO	
	Examiner WING-FUNG YUEN	Art Unit 2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 January 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/2/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-9 have been presented for examination.

Priority

2. The Examiner acknowledges Applicant's claim of priority to a foreign priority date of 3rd February 2004.

Specification

3. The abstract of the disclosure is objected to because of the following minor informalities: the word "flexible" appears to be a misspelling of "flexibly" in line 2. Correction is required. See MPEP § 608.01(b).
4. The disclosure is objected to because of the following informalities: words appear to be missing after the word "such" in page 6 line 24; the word "of" after "means" is redundant in page 8 line 13; the word "to" after "accessing" is redundant in page 16 line 2; the word "tree-dimensional" should perhaps be changed to "three-dimensional" in page 20 line 20.
Appropriate correction is required.
5. 35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are: the term "numbering system" used in page 2 line 20 and the term "numbering operation" used in page 3 line 25, page 4 line 2 and 5-6 do not precisely define the type of prior art

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systems and operations which will benefit from Applicant's invention. The Examiner surmises, from context and in view of bottom paragraph on page 9, "numbering" refers to "data (number) management" ; for example, database systems/operations. It is also unclear, in the paragraph spanning pages 3 and 4, which copy (centrally or locally managed) file is replaced after the design is completed. Further, the word "generalized" at the end of the paragraph confuses the meaning even more. Various references to "mechanism CAD system" appear to be directed to the more conventional "mechanical CAD (MCAD) system".

6. In page 15 line 12, the term "the entity file of an OS (operating system)" is unclear and inexact. It is not clear if this is the same "entity file" recited in page 17 line 6.
7. In page 16 line 3, the recited promise of "*2D mechanism data*" *will be mentioned later* is not carried out. "2D mechanism data" should perhaps be changed to "2D electric data" which is mentioned later on in the description of the instant application.
8. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

9. **Claim 5** is objected to because of the following informalities: the word “of” after “means” is redundant in line 3. Appropriate correction is required.
10. **Claim 8** is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim *cannot depend from any other multiple dependent claim (i.e. claims 5 and 6 both depends on claim 2)*. See MPEP § 608.01(n). Accordingly, the claim has not been further treated on the merits.
11. **Claim 9** is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim *cannot depend from any other multiple dependent claim (i.e. claim 8)*. See MPEP § 608.01(n). Accordingly, the claim has not been further treated on the merits.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. Claims 1, 2-5, 7 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

13. Regarding claim 1, the term “virtually shared state” does not appear to be well known in the art in view of a search on Google.com. The description gives two implementation examples of “virtually shared state” (*p. 14 lines 20-23*) but failed to provide an explicit definition so as to establish the meets and bounds of the claim scope (*i.e. the objected oriented data model and database tables mentioned there are not recited in the instant claims*). While examiners are to interpret claim limitation in light of the specification, they must not import limitations from the specification into the claims (*exclusive of means-plus function claims*). Claims 7 and 9 share this indefiniteness by claiming the same subject matter.
14. Regarding **claim 2**, claim elements “*a setup means for setting up arbitrary design parameters among the design parameters used respectively in the plurality of different CAD systems into a virtually shared state*” and “*a managing means for managing independently the design parameters in the virtually shared state set up by the setup means from the design parameters in no virtually shared state*” are means (or step) plus function limitations that invokes 35 U.S.C. 112, sixth paragraph. However, the written description fails to disclose the corresponding structure, material, or acts for the claimed function.
15. The description vaguely specifies using data modeling (page 19 lines 4-8) or database tables relations (page 14 lines 22-23) to represent the “arbitrary design parameters” to be set up “into a virtually shared state” without specifying how

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these “design parameter objects” are shared among the plurality of different CAD systems as claimed. The “managing means” is merely recited in the description on pages 6 and 7 without specific structure, material, or act for the claimed “managing” function.

16. Regarding **claim 3**, claim element “*a history managing means for managing a history between the design parameters used respectively in the plurality of different CAD systems and the shared parameters registered to the database by means of the registration means*” and “*a finite difference managing means for managing the finite differences between the design parameters used respectively in the plurality of different CAD systems and the shared parameters registered to the database by the registration means based on the history managed by the history managing means*” are means (or step) plus function limitations that invokes 35 U.S.C. 112, sixth paragraph. However, the written description fails to disclose the corresponding structure, material, or acts for the claimed function.

17. The description merely recites the use of a “history managing means” and “finite difference managing means” on pages 7 and 8 without specific structures, materials, or acts for the claimed “managing” functions.

18. Regarding **claim 4**, claim element “a notification means for notifying the finite differences managed by the finite difference managing means to the plurality of different CAD systems” is a means (or step) plus function limitations that invokes

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35 U.S.C. 112, sixth paragraph. However, the written description fails to disclose the corresponding structure, material, or acts for the claimed function. The description merely recites the use of a “notification means” on page 8 without specific structure, material, or act for the claimed “notifying” function. Further, claim 4 inherit all the indefinite limitations of parent claim 3.

19. Regarding **claim 5**, claim element “a preparation means of capable of preparing three-dimensional data in a condition wherein logical electric design information has been correlated to physical three-dimensional configuration information” is a means (or step) plus function limitations that invokes 35 U.S.C. 112, sixth paragraph. However, the written description fails to disclose the corresponding structure, material, or acts for the claimed function. The description merely recites the use of a “preparation means” on page 8 without specific structure, material, or act for the claimed “preparing” function. Further, claim 5 inherit all the indefinite limitations of parent claim 2.

20. Applicant is required to:

- (a) Amend the claim so that the claim limitation will no longer be a means (or step) plus function limitation under 35 U.S.C. 112, sixth paragraph; or
- (b) Amend the written description of the specification such that it expressly recites what structure, material, or acts perform the claimed function without introducing any new matter (35 U.S.C. 132(a)).

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If applicant is of the opinion that the written description of the specification already implicitly or inherently discloses the corresponding structure, material, or acts so that one of ordinary skill in the art would recognize what structure, material, or acts perform the claimed function, applicant is required to clarify the record by either:

- (a) Amending the written description of the specification such that it expressly recites the corresponding structure, material, or acts for performing the claimed function and clearly links or associates the structure, material, or acts to the claimed function, without introducing any new matter (35 U.S.C. 132(a)); or
- (b) Stating on the record what the corresponding structure, material, or acts, which are implicitly or inherently set forth in the written description of the specification, perform the claimed function. For more information, see 37 CFR 1.75(d) and MPEP §§ 608.01(o) and 2181.

21. Further regarding **claim 5**, the word "means" is followed by the word(s) "of capable of preparing" in an apparent attempt to use a "means" clause to recite a claim element as a means for performing a specified function. However, since the function "preparing" is not recited as positively being performed, it is impossible to determine the equivalents of the element, as required by 35 U.S.C. 112, sixth paragraph. See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967).

Claim Interpretations

22. The term “virtually shared state” is interpreted to mean “having similar or analogous attribute” (suitable for assignment in a plurality of CAD systems) in view of description paragraph starting on page 5 line 21.
23. Regarding claim 4, per common English usage, the noun after the verb “notifying” is usually the entity receiving the notification. Accordingly, lines 3-5 of claim 4 is being examined as if it is written as: "... notifying the plurality of different CAD systems of the finite differences managed by the finite difference managing means."
24. Regarding claim 5, the broadest reasonable interpretation is being applied to the “preparation means” limitation for examination purpose.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

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25. Claims 1, 7 and 8 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

26. As per **claim 1**, while the preamble recites the presence of Computer Aided Design (CAD) systems, those systems are not disclosed as being used to cause some of the design parameters to be in a virtually shared state or to manage those design parameters. The recited actions to put (*i.e. decide/designate manually, see description paragraph spanning pages 9 and 10*) some design parameters into a virtually shared state (*i.e. amount of RAM and sizes of hard disks*) among the plurality of different CAD systems (*"among" does not indicate the execution of computer instructions*) and to manage them independently afterward can be done by a person tabulating the parameters on pieces of paper with the aid of pen and ink. The recited method steps are not recited as machine implemented and thus is not tied to a particular machine, nor do they particularly transform a particular article (*"design parameters" is interpreted as being abstract*) to a different state or thing. Thus they are deemed to be non-statutory subject matter per current Office practices.

27. As per **claims 7 and 8**, they are directed toward software (*program*) alone and not tied to a machine or computer program product stored on a computer readable storage medium that when executed by a processor perform the method steps of claim 1 as recited in claim 7 or provides the functionalities of

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claims 2-6 as recited in claim 8. These claims are directed toward non-statutory subject matter. See MPEP section 2106.01 specifically the section titled 'FUNCTIONAL DESCRIPTIVE MATERIAL: "DATA STRUCTURES " REPRESENTING DESCRIPTIVE MATERIAL PER SE OR COMPUTER PROGRAMS REPRESENTING COMPUTER LISTINGS *PER SE*'

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

28. Claims 1, 2, 3, 5 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Paul K. Wright et al. in "Management and Analysis of Design Constraints for Electronic-Mechanical Product Manufacturing", Transactions of the North American Manufacturing Research Institution, May 2002, Volume 30, pp.703-710 (Wright hereinafter).

29. As per **claims 1 and 7**, Wright discloses a design parameter (*i.e. design features, see Abstract lines 9-11*) managing method for managing design parameters used respectively in a plurality of different CAD systems ((*MCAD and ECAD, ibid. lines 4-9*)), characterized by that: arbitrary design parameters (*i.e.*

interacting or coupled electrical/mechanical features, see p. 704 column 2 lines 6-8) among the design parameters (i.e. all electrical/mechanical features) used respectively in the plurality of different CAD systems are made to be a virtually shared state (i.e. cross domain design couplings, see p. 704 column 2 near lines 3-7 and table 1) among the plurality of different CAD systems; and the design parameters in the virtually shared state are managed independently from the design parameters in no virtually shared state ((“When a coupling is created, constraints can be applied...”, see p. 708 column 1 paragraph 3).

30. Regarding claim 2, the setup and managing means are being treated under 35 U.S.C. 112 sixth paragraph as means plus function limitations. Specifically, these limitations are being examined as if they were written as below: (setup means, in view of p. 19 lines 2-10) creating object-oriented data models of arbitrary design parameters among the design parameters suitable to be used respectively in the plurality of different CAD; and (managing means, in view of figure 1) using a database to manage independently the design parameters in the virtually shared state set up by the setup means from the design parameters in no virtually shared state.

31. As per **claim 2**, Wright discloses a design parameter (*i.e. design features, see Abstract lines 9-11*) managing system (*figure 1*) for managing design parameters used respectively in a plurality (*MCAD and ECAD, ibid. lines 4-9*) of different CAD systems, characterized by having: a setup means creating object-oriented

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data models (*i.e. Entity-Relationship of underlying ORDBMS, see figure 5 and p. 706 column 1 near line 18*) of arbitrary design parameters (*i.e. interacting or coupled electrical/mechanical features, see p. 704 column 2 lines 6-8*) and a managing means using a database (*i.e. Oracle8i, p. 706 column 1 near line 20*) to manage independently (*"When a coupling is created, constraints can be applied..."*, see p. 708 column 1 paragraph 3) the virtually shared design parameters (*i.e. cross domain design couplings, see p. 704 column 2 near lines 3-7 and table 1*) as discussed in the paragraph above.

32. Regarding claim 3, Applicant has failed to properly invoke 35 U.S.C. 112 sixth paragraph treatment for the recited "history managing means" limitation. The instant disclosure does not describe (*p. 7 line 22 and p. 8 line 5*) sufficient structure, materials, or acts to perform the recited "managing" function. However, the registration (in view of p. 19 lines 15-21) and finite difference managing (in view of p. 10 lines 13-16) means are being treated under 35 U.S.C 112 sixth paragraph as means plus function limitations. Specifically, these limitations are being examined as if they were written as discussed below.

33. As per **claim 3**, Wright discloses a design parameter (*i.e. design features, see Abstract lines 9-11*) managing system (*figure 1*) for managing design parameters used respectively in a plurality (*MCAD and ECAD, ibid. lines 4-9*) of different CAD systems, characterized by having: registering an attribute correlation table

(table 1 and figure 5 disclose a functionally equivalent implementation) for correlating arbitrary design parameters (i.e. electronic/mechanical feature IDs) among the design parameters used respectively in the plurality of different CAD systems as the shared parameters (i.e. cross-domain coupled, see p. 706, see table 1 and p. 706 paragraph spanning column 1 and 2) among the plurality of different CAD systems to a database; a history managing means (i.e. feature log, see p. 708 paragraph spanning column 1 and 2) for managing a history (each feature change is logged) between the design parameters used respectively in the plurality of different CAD systems and the shared parameters registered to the database by means of the registration means; and reflecting (i.e. "be current with the latest modifications to CAD models", see p. 704 paragraph spanning column 1 and 2) the differential information (modifications) between the design parameters used respectively in the plurality of different CAD systems (MCAD and ECAD) and the shared parameters registered to the database by the registration means based on the history managed by the history managing means.

34. As per **claim 5**, the teachings of Wright are disclosed as discussed in claim 2 rejection above. Wright also disclose a preparation means (*Component Anatomy Tree, see figure 3*) capable of preparing (*connecting with dotted line, see p. 704 column 2 last paragraph line 12 to p. 705 column 1 line 9 and figure 4*) three-dimensional data (*i.e. lid CAD model*) in a condition wherein logical electric

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design information (*i.e. mote contact pad position and size*) has been correlated to physical three-dimensional configuration information (*lid access holes position and size*).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

35. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wright.

36. Regarding claim 4, Applicant has failed to properly invoke 35 U.S.C. 112 sixth paragraph treatment for the recited “notification means” limitation. The instant disclosure does not describe (*p. 8 line 8*) sufficient structure, materials, or acts to perform the recited “managing” function.

37. As per **claim 4**, the teachings of Wright are disclosed as discussed in claim 3 rejection above. Wright discloses a notification means (*p. 708 column 1 last paragraph lines 6-10*) notifying the finite differences managed by the finite difference managing means to designers who use the plurality of different CAD systems (*both systems: the mechanical lid and electronic PCB*). Wright does not

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disclose expressly of sending notification to the plurality of CAD systems as claimed.

38. But it is well known in the art to display system messages when a user first log on. It would have been obvious to a person of ordinary skill in the art at the time of the invention to also configure Wright's notification system to request the notification message be displayed when the users next log on to the system. The motivation for doing so would have been to increase the likelihood of the users receiving the notification message. Therefore, it would have been obvious to modify Wright as discussed for the benefit of better communication to obtain the invention as specified in claim 4.

39. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wright in view of U.S. Patent Application Publication # 2003/0001839 to Tatsuhiro Matsuda (Matsuda hereinafter).

40. As per **claim 6**, the teachings of Wright are disclosed as discussed in claim 2 rejection above. Wright does not disclose expressly the use of an electronic parts data library as claimed. Matsuda discloses a means for preparing and managing an electronic parts data library which has been modeled in a three-dimensional

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configuration (*Matsuda: component three-dimensional detail shape library 22, see figure 1 and paragraph 47 lines 13-14*);

41. Wright and Matsuda are analogous art because they are from same field of endeavor of collaborative mechanical and electrical Computer-Aid Design. It would have been obvious to a person of ordinary skill in the art at the time of the invention to add Matsuda's electronic part data library with detailed 3D shapes to Wright's system. The motivation for doing so would have been to create highly precise 3D models without re-rendering each part from scratch each time (*Matsuda: paragraphs 4-5*).

42. Matsuda does not disclose expressly the three-dimensional electronic parts data library being arranged so as to have parts origin information and material physical property information. Wright discloses (*ORDBMS, see Wright figure 5 and p.706*) an electronic parts database correlating a shared parameter (*i.e. electronic part/EFEATURE*) with its part origin (*i.e. location/EFEATURE_LOC*), and a material physical property information (*i.e. size/EFEATURE_SIZE*).

43. It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Matsuda's electronic parts database to include part origin, material physical property information and feature ID of each electronic part with its 3D detailed shape. The motivation for doing so would have been to minimize the need to access multiple databases during the design process.

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44. Therefore, it would have been obvious to combine Matsuda with Wright for the benefit of increased computation efficiency to obtain the invention as specified in claim 6.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent Application Publication # 2002/0083082 A1 to Fujieda discloses system of integrated processing with multiple CAD systems. U.S. Patent Application Publication # 2002/0130869 A1 to Camiener et al. discloses a non vendor specific CAD data interchange format. U.S. Patent # 6,542,937 B1 to Kask et al. discloses interfacing 2D CAD system with object-oriented 3D modeling systems. Hui-Fen Wang et al. in "CAD/CAM integrated system in collaborative development environment", Robotics and Computer Integrated Manufacturing, Vol. 18, No. 2, April 2002, pp. 135-145 provides a useful overview of the field of endeavor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WING-FUNG YUEN whose telephone number is (571)270-7705. The examiner can normally be reached on Mon-Thu, 8:00 am-5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, KAMINI SHAH can be reached on (571)272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kamini S Shah/
Supervisory Patent Examiner, Art
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/W.Y./
Examiner, AU 2128

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